



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office -  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,961	06/17/2005	Francesca Pignagnoli	62437	6667

109 7590 03/12/2007  
THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION,  
P. O. BOX 1967  
MIDLAND, MI 48641-1967

EXAMINER
----------

COONEY, JOHN M

ART UNIT	PAPER NUMBER
----------	--------------

1711

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/12/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/539,961

Applicant(s)

PIGNAGNOLI ET AL.

Examiner

John m. Cooney

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5 and 8-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5 and 8-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. 20070306.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2-12-07 has been entered.

***Interview Notes***

In an interview conducted 3-5-07 proposals for amendments narrowing the polyol to the limitations from the supporting disclosure at page 4 lines 24-25, canceling the polyol composition claims, and limiting the blowing agent to only the alkanes of the claims. Though examiner said the proposals appear to overcome the rejection of record, examiner noted also that the proposals would need to be further considered. In a continued interview conducted with Ray Ashburg on 3-6-07, examiner indicated that upon further consideration the proposals do not appear to bring the instant application into condition for allowance based on the evidence of record. Examiner indicated that it is his position that an adequate showing of new or unexpected results commensurate in scope with the scope of the claims would necessarily require examples having variation in (a.) the selection of aromatic polyols representative of the scope of applicants' claims (b.) the value points for the amounts of the polyol of applicants' claim representative of the scope of applicants' claims (c.) the value points for the amounts of formic acid representative of the scope of applicants' claims, and (d.) the amounts of alkane used

representative of the scope of applicants' claims. Examiner agreed that the non-halogenated alkanes of the claims appear equivalent to one another and a required showing would not require exemplification using an alkane other than n-pentane.

Additionally, though examiner indicated that the affidavit in support of the proposals would be entered. The affidavit must be formally submitted in order to be entered as evidence of record. Also, no examiner's amendments will be forthcoming as no Notice of Allowability is being issued at this time.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, and 8-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hickey et al.(6,359,022) in view of Chow et al.(3,842,036).

Hickey et al. discloses preparations of rigid closed cell foams prepared from two component foam forming compositions wherein (a.) the polyols component includes aromatic polyester polyol, polyether polyol as desired, alkanes and water as blowing agents, as well as, other blowing agents, including, as a preferable species, formic acid, and hydrofluorocarbons, as desired, and other ingredients; (b.) the isocyanate

Art Unit: 1711

component comprises, at least, specifically, Mondur 489 which is an aromatic isocyanate having a functionality of 3.0, and (c.) the two components are combined at various NCO indexes meeting those of applicants claims (see the abstract, column 1 lines 12-30, column 2 lines 41-51, column 4 lines 66-67, column 11 lines 65-67, column 12 lines 55-57, column 13-15, column 21 lines 2-22, Example 10, Table 5, and claims 15 and 16, as well as, the entire document).

Hickey et al. differs from applicants' claims in that formic acid and hydrofluorocarbons are not particularly required. However, formic acid is exemplified as a most preferred monocarboxylic auxiliary blowing agent (column 14 lines 44-45) and the hydrofluorocarbons of applicants' claims are all recited as acceptable auxiliary blowing agents in Hickey et al.'s disclosure (see column 15 lines 37-53). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the formic acid and hydrofluorocarbon auxiliary blowing agents of Hickey et al. in the preparations of Hickey et al. for the purpose of imparting their foam enhancing and producing effects in order to arrive at the products and processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results. Additionally, Hickey et al. discloses control of the amount of their blowing agents (see column 15 line 62- column 16 line 37) and control of amounts of the blowing agent for purposes of controlling the implementation of their result effective effect is within the purview of the ordinary practitioner in the art. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves nor

Art Unit: 1711

more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Further, a prima facie case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of similar properties.

*Titanium Metals v Banner* 227 USPQ 773. (see also MPEP 2144.05 I)

Hickey et al. differs from applicants' claims in that phenol formaldehyde novolak initiated polyalkylene oxide polyols are not exemplified as species in the description of the preferentially employed polyoxyalkylene polyether additional polyols of Hickey et al.'s invention (column 11 lines 65-67). However, Chow et al. discloses phenol formaldehyde novolak initiated polyalkylene oxide polyols to be useful polyether polyols in the formation of rigid polyurethane and polyisocyanurate foams for purposes of assisting in rigidity contribution and enhancing strength and stability properties in products formed (see column 1 line 46- column 3 line 22, as well as, the entire document). Accordingly, it would have been obvious for one having ordinary skill in the art to have employed the phenol formaldehyde novolak initiated polyalkylene oxide polyols of Chow et al. as the additionally employed polyoxyalkylene polyols in the preparations of Hickey et al. for the purpose of imparting their rigidity, strength, and stability contributing effect to the products realized in order to arrive at the products and processes of applicants' claims with the expectation of success in the absence of a showing of new or unexpected results. Chow et al. is looked to for the disclosure of the polyol of applicants' claims, and its disclosure is inclusive of employment of these

Art Unit: 1711

polyols in the amounts as claimed by applicants. Further, the following applies here as well. Normally, changes in result effective variables are not patentable where the difference involved is one of degree, not of kind; experimentation to find *workable* conditions generally involves not more than the application of routine skill in the art of chemical engineering. *In re Aller* 105 USPQ 233. Similarly, the determination of *optimal* values within a disclosed range is generally considered obvious. *In re Boesch* 205 USPQ 215. Further, a prima facie case of obviousness has been held to exist where the proportions of a reference are close enough to those of the claims to lead to an expectation of similar properties. *Titanium Metals v Banner* 227 USPQ 773. (see also **MPEP 2144.05 I**)

Applicants' provide no structure to their laminate other than requiring that the foam material be present. Accordingly, no patentable weight is afforded the limitations of claim 15.

Applicants' arguments have been considered, but rejection is maintained for the reasons set forth above. Applicants' arguments as to amounts of respective components are addressed in the body of the rejection above.

As for the showing of results the following need to be considered:

Claims Must be Commensurate With Showings:

Evidence of superiority must pertain to the full extent of the subject matter being claimed. *In re Ackerman*, 170 USPQ 340; *In re Chupp*, 2 USPQ 2d 1437; *In re Murch*

Art Unit: 1711

175 USPQ 89; *Ex Parte A*, 17 USPQ 2d 1719; accordingly, it has been held that to overcome a reasonable case of prima facie obviousness a given claim must be commensurate in scope with any showing of unexpected results, and in order to establish unexpected results for a claimed invention, objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support. In re Greenfield, 571 F.2d 1185, 1189, 197 USPQ 227, 230 (CCPA 1978), In re Linder, 457 F.2d 506, 508 (1972), In re Tiffin, 448 F.2d 791, 792 (1971). Further, a limited showing of criticality is insufficient to support a broadly claimed range. *In re Lemin*, 161 USPQ 288. See also *In re Kulling*, 14 USPQ 2d 1056.

Results Must be Unexpected:

Unexpected properties must be more significant than expected properties to rebut a prima facie case of obviousness. *In re Nolan* 193 USPQ 641 CCPA 1977.

Obviousness does not require absolute predictability. *In re Miegel* 159 USPQ 716.

Since unexpected results are by definition unpredictable, evidence presented in comparative showings must be clear and convincing. *In re Lohr* 137 USPQ 548.

In determining patentability, the weight of the actual evidence of unobviousness presented must be balanced against the weight of obviousness of record. *In re Chupp*, 2 USPQ 2d 1437; *In re Murch* 175 USPQ 89; *In re Beattie*, 24 USPQ 2d 1040.



Applicants' have not persuasively demonstrated unexpected results for the combinations of their claims. Applicants have not demonstrated their results to be clearly and convincingly unexpected and applicants have not demonstrated their showings to be commensurate in scope with the scope of combinations now claimed.

Applicants' arguments have been considered. However, rejection is maintained for the reasons set forth above.

Though formic acid is referred to as an "auxiliary" blowing agent used in conjunction with the other blowing agents disclosed by Hickey et al., such does not negate Hickey et al.'s disclosure of this species as a preferred carboxylic acid used in imparting chemically reactive foam forming effects.

Hickey et al. is maintained as the primary reference for adequately teaching the claim elements indicated in the rejection above, and Chow et al is maintained to adequately cure the deficiencies of this cited primary reference. Based on the evidence of record, the rejection does not fail based on the deficiencies of Hickey et al. or the lackings of Chow et al already found in the Hickey et al. reference. Additionally, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As to applicants' showing of results, examiner maintains that the current evidence of record fails to establish a clear and convincing showing of new or

Art Unit: 1711

unexpected results associated with the combinations of their claims that are commensurate in scope with the scope of the claims as they currently stand.

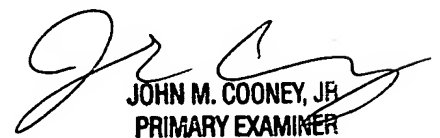
Applicants' have not met their burden of "demonstrating substantially improved results" to be associated with the products and processes of the instant claims which are commensurate in scope with the scope of the claims as they currently stand. Further, applicants' have not met their burden of factually establishing improved fire retardation and smoke properties to be associated with the products and processes of the instant claims that are commensurate in scope with the scope of the claims as they currently stand.

Further, as to the new claims directed towards methods of improving fire retardancy of polyisocyanates-based foams, it is held that a showing of new or unexpected results attributed to the processes claimed would need to be established that are commensurate in scope with the scope of the claims in order to overcome the rejection set forth above.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Cooney whose telephone number is 571-272-1070. The examiner can normally be reached on M-F from 9 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck, can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
JOHN M. COONEY, JR.  
PRIMARY EXAMINER  
Group 1700